

Attorney Docket No.: Noxtech-01B

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

Sudduth, et al

Serial No.: 09/211,879

Filed: December 14, 1998

For: APPARATUS AND METHOD FOR
REDUCING NOX FROM
EXHAUST GASES PRODUCED
BY INDUSTRIAL PROCESSES

Examiner: Vanoy, T

Group Art Unit: 1764

Official

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JUN 11 1999

GROUP 1700

Assistant Commissioner for Patents
Washington, D.C. 20231

SUPPLEMENTAL AMENDMENT

Sir:

Based on the recent telephone interview, please examine the above-identified application in view of the following amendment and remarks.

IN THE CLAIMS:

61. A method comprising the steps of:

controlling the initial temperature and composition of an exhaust gas in the ranges of about 900-1600°F and about 2-18% O₂, respectively, effective for autoignition of hydrocarbons; controlling the introduction of hydrocarbons to autoignite and release heat autothermally effective for self-sustaining autocatalytic reactions under fuel-lean conditions wherein the exhaust gas contains at least 1% O₂ and is heated to a final temperature in the range of about 1400-1550°F; and

introducing one or more reductants for NO_x into the exhaust gas wherein NH₃, HNCO or a combination thereof are generated from the reductant(s);

wherein the autothermal heating results in autocatalytic conditions effective for reducing the NO_x and substantially depleting the NH₃, HNCO and hydrocarbons and any by-product CO.

62. (amended) The method of claim 61, wherein the NO_x in the exhaust gas is reduced nearly stoichiometrically by as much as 80-90%.

63. (amended) The method of claim 61, wherein the NO_x in the exhaust gas is selectively reduced by as much as about 99%.